competition among purchasers, the Act will eventually raise the average selling value of reversions.

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ANNO TRICESIMO PRIMO VICTORÆ REGINÆ.

CAP. IV.

An Act to amend the Law relating to Sales of Reversions.

[*7th December,* 1867.]
</div>

WHEREAS it is expedient to amend the Law, as administered in Courts of Equity, with respect to Sales of Reversions:

Be it enacted by the Queen's most Excellent Majesty, by and with the Advice and Consent of the Lords Spiritual and Temporal, and Commons, in this present Parliament assembled, and by the Authority of the same, as follows:

1. No Purchase, made *bonâ fide* and without Fraud or unfair Dealing, of any Reversionary Interest in Real or Personal Estate shall hereafter be opened or set aside merely on the Ground of Undervalue. *No Purchase made bonâ fide, of Reversionary Interests to be set aside merely on the Ground of Undervalue.*

2. The Word "Purchase" in this Act shall include every Kind of Contract, Conveyance, or Assignment under or by which any beneficial Interest in any kind of Property may be acquired. *Interpretation of "Purchase."*

3. This Act shall come into operation on the First Day of *January*, One thousand eight hundred and sixty-eight, and shall not apply to any Purchase concerning which any Suit shall be then depending. *Commencement of Act.*

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*A Budget of Paradoxes.** By PROFESSOR DE MORGAN.

(Continued from vol. xiii., page 245.)

No. XXI. 1854—1855.
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Calcolo decidozzinale del Barone Silvio Ferrari. Turin, 1854, 4to.

This is a serious proposal to alter our numeral system and to count by twelves. Thus 10 would be twelve, 11 thirteen, &c., two new symbols being invented for ten and eleven. The names of numbers must of course be changed. There are persons who think such changes practicable. I thought this proposal absurd when I first saw it, and I think so still: but the one I shall presently describe beats it so completely in that point, that I have not a smile left for this one.

* In continuing, with the permission of the author, this reprint of the Budget of Paradoxes, we have omitted certain articles, which we thought would have little or no interest for our readers. Mr. De Morgan (without objecting to such omissions) wishes it to be clearly explained that he is in no way answerable for them, or for any others that may occur. He desires to avoid the possibility of any change or suspension of his opinion being inferred. ED. *J. I. A.*

> The successful and therefore probably true theory of Comets. London,
> 1854. (4 pp. duodecimo.)

The author is the late Mr. Peter Legh, of Norbury Booths
Hall, Knutsford, who published for eight or ten years the *Ombro-
logical Almanac,* a work of asserted discovery in meteorology. The
theory of comets is that the joint attraction of the new moon and
several planets in the direction of the sun, draws off the gases
from the earth, and forms these cometic meteors. But how these
meteors come to describe orbits round the sun, and to become
capable of having their returns predicted, is not explained.

> The Mormon, New York, Saturday, Oct. 27, 1855.

A newspaper, headed by a grand picture of starred and striped
banners, beehive, and eagle surmounting it. A scroll on each
side: on the left, "Mormon creed. Mind your own business.
Brigham Young": on the right, "Given by inspiration of God.
Joseph Smith." A leading article on the discoveries of Prof.
Orson Pratt says "Mormonism has long taken the lead in religion:
it will soon be in the van both in science and politics." At the
beginning of the paper is Prof. Pratt's "Law of Planetary Rota-
tion." The cube roots of the densities of the planets are as the
square roots of their periods of rotation. The squares of the cube
roots of the masses divided by the squares of the diameters are as
the periods of rotation. Arithmetical verification attempted, and
the whole very modestly stated and commented on. Dated G. S. L.
City, Utah Ter., Aug. 1, 1855. If the creed, as above, be correctly
given, no wonder the Mormonites are in such bad odour.

> The two estates; or both worlds mathematically considered. London,
> 1855, small (pp. 16).

The author has published mathematical works with his name.
The present tract is intended to illustrate mathematically a point
which may be guessed from the title. But the symbols do very
little in the way of illustration: thus, x being the *present value* of
the future estate (eternal happiness), and a of all that this world
can give, the author impresses it on the mathematician that, x being
infinitely greater than a, $x + a = x$, so that a need not be con-
sidered. This will not act much more powerfully on a mathema-
tician by virtue of the symbols than if those same symbols had
been dispensed with: even though, as the author adds, "It was
this method of neglecting infinitely small quantities that Sir
Isaac Newton was indebted to for his greatest discoveries."

There has been a moderate quantity of well-meant attempt to enforce, sometimes motive, sometimes doctrine, by arguments drawn from mathematics, the proponents being persons unskilled in that science for the most part. The ground is very dangerous: for the illustration often turns the other way with greater power, in a manner which requires only a little more knowledge to see. I have, in my life, heard from the pulpit or read, at least a dozen times, that all sin is infinitely great, proved as follows. The greater the being, the greater the sin of any offence against him : therefore the offence committed against an infinite being is infinitely great. Now the mathematician, of which the proposers of this argument are not aware, is perfectly familiar with quantities which increase together, and never cease increasing, but so that one of them remains finite when the other becomes infinite. In fact the argument is a perfect *non sequitur*. Those who propose it have in their minds, though in a cloudy and indefinite form, the idea of the increase of guilt being *proportionate* to the increase of greatness in the being offended. But this it would never do to state : for by such statement not only would the argument lose all that it has of the picturesque, but the asserted premise would have no strong air of exact truth. How could any one undertake to appeal to conscience to declare that an offence against a being $4\frac{7}{10}$ times as great as another is exactly, no more and no less, $4\frac{7}{10}$ times as great as an offence against the other ?

My old friend, the late Dr. Olinthus Gregory, who was a sound and learned mathematician, adopted this dangerous kind of illus-lustration in his Letters on the Christian Religion. He argued, by parallel, from what he supposed to be the necessarily mysterious nature of the *impossible* quantity of algebra to the necessarily mysterious nature of certain doctrines of his system of Christianity. But all the difficulty and mystery of the impossible quantity is now cleared away by the advance of algebraical thought: and yet Dr. Gregory's book continues to be sold, and no doubt the illustration is still accepted as appropriate.

The mode of argument used by the author of the tract above named has a striking defect. He talks of reducing this world and the next to "present value," as an actuary does with successive lives or next presentations. Does value make interest? and if not, why? And if it do, then the present value of an eternity is *not* infinitely great. Who is ignorant that a perpetual annuity at 5 per cent. is worth only twenty years' purchase? This point ought to be discussed by a person who treats heaven as a deferred

perpetual annuity. I do not ask him to do so, and would rather he did not; but if he *will* do it, he must either deal with the question of discount, or be asked the reason why.

When a very young man, I was frequently exhorted to one or another view of religion by pastors and others who thought that a mathematical argument would be irresistible. And I heard the following more than once, and have since seen it in print, I forget where. [It is Pascal's, as hereafter noted]. Since eternal happiness belonged to the particular views in question, a benefit infinitely great, then even if the probability of their arguments were small, or even infinitely small, yet the product of the chance and benefit, according to the usual rule, might give a result which no one ought in prudence to pass over. They did not see that this applied to all systems as well as their own. I take this argument to be the most perverse of all the perversions I have heard or read on the subject: there is some high authority for it, whom I forget.

The moral of all this is, that such things as the preceding should be kept out of the way of those who are not mathematicians, because they do not understand the argument; and of those who are, because they do.

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No. XXII.   1855.

The Sentinel, vol ix. no. 27.   London, Saturday, May 26, 1855.

This is the first London number of an Irish paper, Protestant in politics. It opens with 'Suggestions on the subject of a *Novum Organum Moralium*,' which is the application of algebra and the differential calculus to morals, socials, and politics. There is also a leading article on the subject, and some applications in notes to other articles. A separate publication was afterwards made with the addition of a long Preface; the author being a clergyman who I presume must have been the editor of the *Sentinel*.

> Suggestions as to the employment of a *Novum Organum Moralium*. Or, thoughts on the nature of the Differential Calculus, and on the application of its principles to metaphysics, with a view to the attainment of demonstration and certainty in moral, political and ecclesiastical affairs. By Tresham Dames Gregg, Chaplain of St. Mary's, within the church of St. Nicholas intra muros, Dublin. London, 1859, 8vo. (pp. xl + 32).

I have a personal interest in this system, as will appear from the following extract from the newspaper:—

" We were subsequently referred to De Morgan's ' Formal Logic' and Boole's ' Laws of Thought,' both very elaborate works, and greatly in the direction taken by ourselves. That the writers amazingly surpass us in learning we most willingly admit, but we venture to pronounce of both their learned treatises, that they deal with the subject in a mode that is scholastic to an excess. . . . That their works have been for a considerable space of time before the world and effected nothing, would argue that they have overlooked the vital nature of the theme. . . . On the whole, the writings of De Morgan and Boole go to the full justification of our principle without in any wise so trenching upon our ground as to render us open to reproach in claiming our Calculus as a great discovery. . . . But we renounce any paltry jealousy as to a matter so vast. If De Morgan and Boole have had a priority in the case, to them we cheerfully shall resign the glory and honour. If such be the truth, they have neither done justice to the discovery, nor to themselves [quite true]. They have, under the circumstances, acted like ' the foolish man, who roasteth not that which he taketh in hunting.'. . . . It will be sufficient for us, however, to be the Columbus of these great Americi, and popularise what they found, *if* they found it. We, as from the mountain top, will then become *their* trumpeters, and cry glory to De Morgan and glory to Boole, under him who is the source of all glory, the only good and wise, to whom be glory for ever! *If* they be our predecessors in this matter, they have, under Him, taken moral questions out of the category of probabilities, and rendered them perfectly certain. In that case, let their books be read by those who may doubt the principles this day laid before the world as a great discovery, by our newspaper. Our cry shall be ευρηκασι! Let us hope that they will join us, and henceforth keep their right [*sic*] from under their bushel."

For myself, and for my old friend Mr. Boole, who I am sure would join me, I disclaim both priority, simultaneity, and posteriority, and request that nothing may be trumpeted from the mountain top except our abjuration of all community of thought or operation with this *Novum Organum.*

To such community we can make no more claim than Americus could make to being the forerunner of Columbus who popularized his discoveries. We do not wish for any ευρηκασι, and not even for ἑυρηκασι. For self and Boole, I point out what would have convinced either of us that this house is divided against itself.

A being the apostolic element, δ the doctrinal element, and X the body of the faithful, the church is AδX, we are told. Also, that if A become negative, or the Apostolicity become Diabolicity [my words] ; or if δ become negative, and doctrine become heresy; or if X become negative, that is, if the faithful become unfaithful; the church becomes negative, " the very opposite of what it ought to be." For self and Boole, I admit this. But—which is not noticed—if A and δ should *both* become negative, diabolical origin and heretical doctrine, then the church, AδX, is still positive, what

it ought to be, unless X be also negative, or the people unfaithful
to it, in which case it is a bad church. Now self and Boole—
though I admit I have not asked my partner—are of opinion that
a diabolical church with false doctrine does harm when the people
are faithful, and can do good only when the people are unfaithful.
We may be wrong, but this is what we *do* think. Accordingly,
we have caught nothing, and can therefore roast nothing of our
own : I content myself with roasting a joint of Mr. Gregg's
larder.

These mathematical vagaries have uses which will justify a
large amount of quotation: and in a score of years this may
perhaps be the only attainable record. I therefore proceed.

After observing that by this calculus juries (heaven help them !
say I) can calculate damages "almost to a nicety," and further
that it is made abundantly evident that *cex* is "the general expres-
sion for an individual," it is noted that the number of the Beast
is not given in the Revelation in words at length, but as $\chi\xi\varsigma'$.
On this the following remark is made :—

> " Can it be possible that we have in this case a specimen given to us
> of the arithmetic of heaven, and an expression revealed, which indicates by
> *its* function of addibility, the name of the church in question, and of each
> member of it; and by its function of multiplicability the doctrine, the
> mission, and the members of the great Synagogue of Apostacy? We
> merely propound these questions;—we do not pretend to solve them."

After a translation in blank verse—a very pretty one—of the
18th Psalm, the author proceeds as follows, to render it into
differential calculus :—

> " And the whole tells us just this, that David did what he could. He
> augmented those elements of his constitution which were (*exceptis excipi-
> endis*) subject to himself, and the Almighty then augmented his personal
> qualities, and his vocational *status*. Otherwise, to throw the matter into
> the expression of our notation, the variable *e* was augmented, and *cx* rose
> proportionally. The law of the variation, according to our theory, would
> be thus expressed. The resultant was David the king *cex* [*c=r*?] (who
> had been David the shepherd boy), and from the conditions of the theorem
> we have

$$\frac{du}{de} = ce\frac{dx}{de} + ex\frac{dc}{de} + cx$$

> which, in the terms of ordinary language, just means, that the increase of
> David's educational excellence or qualities—his piety, his prayerfulness,
> his humility, obedience, &c. was so great, that when multiplied by his
> original talent and position, it produced a product so great as to be equal
> in its amount to royalty, honour, wealth, and power, &c.: in short, to all
> the attributes of majesty."

The "solution of the family problem" is of high interest. It is to determine the effect on the family in general from a change [of conduct] in one of them. The person chosen is one of the maid-servants.

"Let cex be the father; $c_1 e_1 x_1$ the mother, &c. The family then consists of the maid's master, her mistress, her young master, her young mistress, and fellow servant. Now the master's calling (or c) is to exercise his share of control over this servant, and mind the rest of his business call this remainder a, and let his calling generally, or all his affairs, be to his maid-servant as $m : y$, *i. e.*, $y = \dfrac{mz}{c}$; : . . . and this expression will represent his relation to the servant. Consequently,

$$cex = \left(a + \frac{mz}{c} \right) ex; \text{ otherwise } \left(a + \frac{mz}{c} \right) ex$$

is the expression for the father when viewed as the girl's master."

I have no objection to repeat so far; but I will not give the formula for the maid's relation to her young master; for I am not quite sure that all young masters are to be trusted with it. Suffice it that the son will be affected directly as his influence over her, and inversely as his vocational power: if then he should have some influence and no vocational power, the effect on him would be infinite. This is dismal to think of. Further, the formula brings out that if one servant improve, the other must deteriorate, and *vice versâ*. This is not the experience of most families: and the author remarks as follows:—

"This is, we should venture to say, a very beautiful result, and we may say it yielded us no little astonishment. What our calculation might lead to we never dreamt of; that it should educe a conclusion so recondite that our unassisted power never could have attained to, and which, if we could have conjectured it, would have been at best the most distant probability, that conclusion being itself, as it would appear, the quintessence of truth, afforded us a measure of satisfaction that was not slight."

That the writings of Mr. Boole and myself "go to the full justification of" this "principle," is only true in the sense in which the Scotch use, or did use, the word *justification*.

No. XXIII. 1856.

The last number of this budget had stood in type for months, waiting until there should be a little cessation of correspondence more connected with the things of the day. I had quite forgotten what it was to contain; and had little thought, when I read the proof,

that my allusions to my friend Mr. Boole, then in life and health, would not be printed until many weeks after his death. Had I remembered what my last number contained, I should have added my expression of regret and admiration to the numerous obituary testimonials which this great loss to science has called forth.

The system of logic alluded to in the last number of this series is but one of many proofs of genius and patience combined. I might legitimately have entered it among my *paradoxes,* or things counter to general opinion : but it is a paradox which, like that of Copernicus, excited admiration from its first appearance. That the symbolic processes of algebra, invented as tools of numerical calculation, should be competent to express every act of thought, and to furnish the grammar and dictionary of an all-containing system of logic, would not have been believed until it was proved. When Hobbes, in the time of the Commonwealth, published his ' Computation or Logique,' he had a remote glimpse of some of the points which are placed in the light of day by Mr. Boole. The unity of the forms of thought in all the applications of reason, however remotely separated, will one day be matter of notoriety and common wonder: and Boole's name will be remembered in connexion with one of the most important steps towards the attainment of this knowledge.

> The Decimal System as a whole. By Dover Statter, London and Liverpool, 1856, 8vo.

The proposition is to make everything decimal. The day, now 24 hours, is to be made 10 hours. The year is to have ten months, Unusber, Duober, &c. Fortunately there are ten commandments, so there will be neither addition to, nor deduction from, the moral law. But the twelve apostles! Even rejecting Judas, there is a whole apostle of difficulty. These points the author does not touch.

> The first Book of Phonetic Reading. London. Fred. Pitman, Phonetic Depot, 20, Paternoster Row, 1856, 12mo.
> The Phonetic Journal. Devoted to the propagation of phonetic reading, phonetic longhand, phonetic shorthand, and phonetic printing. No. 46. Saturday, 15 November, 1856. Vol. 15.

I write the titles of a couple out of several tracts which I have by me. But the number of publications issued by the promoters of this spirited attempt is very large indeed. The attempt itself has had no success with the mass of the public. This I do not regret. Had the world found that the change was useful, I should

have gone contentedly with the stream; but not without regretting our old language. I admit the difficulties which our unpronunciable spelling puts in the way of learning to read: and I have no doubt that, as affirmed, it is easier to teach children phonetically, and afterwards to introduce them to our common system, than to proceed in the usual way. But by the usual way I mean proceeding by letters from the very beginning. If, which I am sure is a better plan, children be taught at the commencement very much by *complete* words*, as if they were learning Chinese, and be gradually accustomed to resolve the known words into letters, a fraction, perhaps a considerable one, of the advantage of the phonetic system is destroyed. It must be remembered that a phonetic system can only be an approximation. The differences of pronunciation existing among educated persons are so great, that, on the phonetic system, different persons ought to spell differently.

But the phonetic party have produced something which will immortalize their plan: I mean their *short hand*, which has had a fraction of the success it deserves. All who know anything of shorthand must see that nothing but a phonetic system can be worthy of the name: and the system promulgated is skilfully done. Were I a young man I should apply myself to it systematically. I believe this is the only system in which books were ever published. I wish some one would contribute to a public journal a brief account of the dates and circumstances of the phonetic movement, not forgetting a list of the books published in shorthand.

A child beginning to read by himself, may owe terrible dreams and waking images of horror to our spelling; as I did when six years old. In one of the common poetry-books there is an admonition against confining little birds in cages, and the child is asked what if a great giant, amazingly strong, were to take you away, shut you up,

> And feed you with vic-tu-als you ne-ver could bear.

The book was hyphened for the beginner's use; and I had not the least idea that *vic-tu-als* were *vittles:* by the sound of the word I judged they must be of iron; and it entered into my soul.

The worst of the phonetic shorthand books is that they nowhere, so far as I have seen, give *all* the symbols, in every stage of advancement, together, in one or following pages. It is symbols

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* The Robinson Crusoe in words of one syllable (published August, 1867) would be an excellent reading book as a sequence to 'The dog bit the cat,' &c.

and talk, more symbols and more tàlk, &c. A universal view of the signs ought to begin the works.

> Ombrological Almanac. Seventeenth year. An essay on Anemology and Ombrology. By Peter Legh, Esq. London, 1856, 12mo.

Mr. Legh, already mentioned, was an intelligent country gentleman, and a legitimate speculator. But the clue was not reserved for him.

> The proof that the three angles of a triangle are equal to two right angles looked for in the inflation of the circle. By Gen. Perronet Thompson. London, 1856, 8vo. (pp. 4.)

Another attempt, the third, at this old difficulty, which cannot be put into few words of explanation.

> Comets considered as volcanoes, and the cause of their velocity and other phenomena thereby explained. London (*circa* 1856), 8vo.

The title explains the book better than the book explains the title.

1856. A stranger applied to me to know what the ideas of a friend of his were worth upon the magnitude of the earth. The matter being one involving points of antiquity, I mentioned various persons whose speculations he seemed to have ignored; among others, Thales. The reply was, "I am instructed by the author to inform you that he is perfectly acquainted with the works of Thales, Euclid, Archimedes,......" I had some thought of asking whether he had used the Elzevir edition of Thales, which is known to be very incomplete, or that of Prof. Niemand, with the lections, Nirgend, 1824, 2 vols. folio; just to see whether the last would not have been the very edition he had read. But I refrained, in mercy.

> The moon is the image of the Earth, and is not a solid body. By The Longitude. (Private Circulation.) In five parts. London, 1856, 1857, 1857; Calcutta, 1858, 1858, 8vo.

The earth is "brought to a focus"; it describes a "looped" orbit round the sun. The eclipse of the sun is thus explained: "At the time of eclipses, the image is more or less so directly before or behind the earth that, in the case of new moon, bright rays of the sun fall and bear upon the spot where the figure of the earth is brought to a focus, that is, bear upon the image of the earth, when a darkness beyond is produced reaching to the earth, and the sun becomes more or less eclipsed." How the earth is "brought to a focus" we do not find stated. Writers of this

kind always have the argument that some things which have been ridiculed at first have been finally established. Those who put into the lottery had the same kind of argument; but were always answered by being reminded how many blanks there were to one prize. I am loath to pronounce against anything: but it does force itself upon me that the author of these tracts has drawn a blank.

No. XXIV.   1856—1858.

Times, April 6 or 7, 1856.   The moon has no rotary motion.

A letter from Mr. Jellinger Symons, inspector of schools, which commenced a controversy of many letters and pamphlets. This dispute comes on at intervals, and will continue to do so. It sometimes arises from inability to understand the character of simple rotation, geometrically; sometimes from not understanding the mechanical doctrine of rotation.

> Lunar Motion.   The whole argument stated, and illustrated by diagrams;
> with letters from the Astronomer Royal.   By Jellinger C. Symons.
> London, 1856, 8vo.

The Astronomer Royal endeavoured to disentangle Mr. 'J. C. Symons, but failed. Mr. Airy can correct the error of a ship's compasses, because he can put her head which way he pleases: but this he cannot do with a speculator.

> The Doctrine of the Moon's Rotation, considered in a letter to the
> Astronomical Censor of the *Athenæum*.   By Jones L. Mac-Elshender.
> Edinburgh, 1856, 8vo.

This is an appeal to those cultivated persons who will read it "to overrule the *dicta* of judges who would sacrifice truth and justice to professional rule, or personal pique, pride, or prejudice"; meaning, the great mass of those who have studied the subject. But how?. Suppose the "cultivated persons" were to side with the author, would those who have conclusions to draw and applications to make consent to be wrong because the "general body of intelligent men," who make no special study of the subject, are against them? They would do no such thing: they would request the general body of intelligent men to find their own astronomy, and welcome. But the truth is that this intelligent body knows better: and no persons know better that they know better than the speculators themselves.

But suppose the general body were to combine, in opposition to those who have studied. Of course all my list must be admitted

to their trial; and then arises the question whether both sides are
to be heard. If so, the general body of the intelligent must hear
all the established side have to say: that is, they must become just
as much of students as the inculpated orthodox themselves. And
will they not then get into *professional rule*, pique, pride, and
prejudice, as the others did? But if, which I suspect, they are
intended to judge just as they are, they will be in a rare difficulty.
All the paradoxers are of like pretensions: they cannot, as a class,
be right, for each one contradicts a great many of the rest. There
will be the puzzle which silenced the crew of the cutter in Marryat's
novel of the Dog-fiend. "A tog is a tog," said Jansen.—"Yes,"
replied another, "we all know a dog is a dog; but the question is
—Is *this* dog a dog?" And this question would arise upon every
dog of them all.

    Zetetic Astronomy: Earth not a globe. 1857 (broadsheet).

    Though only a travelling lecturer's advertisement, there are so
many arguments and quotations that it is a little pamphlet. The
lecturer gained great praise from provincial newspapers for his
ingenuity in proving that the earth is a flat, surrounded by ice.
Some of the journals rather incline to the view: but the *Leicester
Advertiser* thinks that the statements "would seem very seriously
to invalidate some of the most important conclusions of modern
astronomy," while the *Norfolk Herald* is clear that "there must be
a great error on one side or the other." This broadsheet is printed
at Aylesbury in 1857, and the lecturer calls himself *Parallax:* but
at Trowbridge, in 1849, he was S. Goulden. In this last
advertisement is the following announcement—"A paper on the
above subjects was read before the Council and Members of the
Royal Astronomical Society, Somerset House, Strand, London (Sir
John F. W. Herschel, President), Friday, Dec. 8, 1848." No
account of such a paper appears in the *notice* for that month: I
suspect that the above is Mr. S. Goulden's way of representing the
following occurrence. Dec. 8, 1848, the Secretary of the
Astronomical Society said, at the close of the proceedings,—"Now,
gentlemen, if you will promise not to tell the Council, I will read
something for your amusement": and he then read a few of the
arguments which had been transmitted by the lecturer. The fact
is worth noting that from 1849 to 1857, arguments on the
roundness or flatness of the earth did itinerate. I have no doubt
they did much good: for very few persons have any distinct idea
of the evidence for the rotundity of the earth. The *Blackburn*

Standard and *Preston Guardian* (Dec. 12 and 16, 1849) unite in stating that the lecturer ran away from his second lecture at Burnley, having been rather too hard pressed at the end of his first lecture to explain why the large hull of a ship disappeared before the sails. The persons present and waiting for the second lecture assuaged their disappointment by concluding that the lecturer had slipped off the icy edge of his flat disk, and that he would not be seen again till he peeped up on the opposite side.

But, strange as it may appear, the opposer of the earth's roundness has more of a case—or less of a want of case—than the arithmetical squarer of the circle. The evidence that the earth is round is but cumulative and circumstantial: scores of phenomena ask, separately and independently, what other explanation can be imagined except the sphericity of the earth. The evidence for the earth's figure is tremendously powerful of its kind; but the proof that the circumference is $3 \cdot 14159265 \ldots$ times the diameter is of a higher kind, being absolute mathematical demonstration.

No. XXV. 1859.

The great Pyramid. Why was it built? And who built it? By John Taylor, 1859, 12mo.

This work is very learned, and may be referred to for the history of previous speculations. It professes to connect the dimensions of the pyramid with a system of metrology which is supposed to have left strong traces in the systems of modern times; showing the Egyptians to have had good approximate knowledge of the dimensions of the earth, and of the quadrature of the circle. These are points on which coincidence is hard to distinguish from intention. Sir John Herschel noticed this work, and gave several coincidences, in the *Athenæum*, Nos. 1696 and 1697, April 28 and May 5, 1860: and there are some remarks by Mr. Taylor in No. 1701, June 2, 1860.

Mr. Taylor's most recent publication is

The battle of the standards: the ancient, of four thousand years, against the modern, of the last fifty years—the less perfect of the two. London, 1864, 12mo.

This is intended as an appendix to the work on the pyramid. Mr. Taylor distinctly attributes the original system to revelation, of which he says the Great Pyramid is the record. We are advancing, he remarks, towards the end of the Christian Dispen-

sation, and he adds that it is satisfactory to see that we retain the
standards which were given by unwritten revelation 700 years
before Moses.   This is lighting the candle at both ends; for
myself, I shall not undertake to deny or affirm either what is said
about the dark past or what is hinted about the dark future.

My old friend Mr. Taylor is well known as the author of the
argument which has convinced many, even most, that Sir Philip
Francis was Junius: pamphlet, 1813; supplement, 1817; second
edition 'The Identity of Junius with a distinguished living cha-
racter established,' London, 1818, 8vo.   Sir Philip Francis, in a
short conversation with him, made only this remark, "You may
depend upon it you are quite mistaken": the phrase appears to
me remarkable; it has an air of criticism on the book, free from
all personal denial.   [This from Mr. Taylor himself.]   I have
heard, but not from any such degree of nearness to the source,
though not remotely, [it was repeated to Mr. Taylor by the person
who heard it] that Sir Philip said, speaking of writers on the
question,—"Those fellows, for half-a-crown, would prove that
Jesus Christ was Junius."

Mr. Taylor implies, I think, that he is the first who started
the suggestion that Sir Philip Francis was Junius, which I have
no means either of confirming or refuting.   If it be so [and I now
know that Mr. Taylor himself never heard of any predecessor],
the circumstance is very remarkable: it is seldom indeed that the
first proposer of any solution of a great and vexed question is the
person who so nearly establishes his point in general opinion as
Mr. Taylor has done.

As to the Junius question in general, there is a little bit of
the philosophy of horse-racing which may be usefully applied.   A
man who is so confident of his horse that he places him far above
any other, may nevertheless, and does, refuse to give odds against
all the field: for many small adverse chances united make a big
chance for one or other of the opponents.   I suspect Mr. Taylor
has made it at least 20 to 1 for Francis against any one competitor
who has been named: but what the odds may be against the whole
field is more difficult to settle.   What if the real Junius should be
some person not yet named?

Mr. Jopling, *Leisure Hour*, May 23, 1863, relies on the por-
phyry coffer of the great pyramid, in which he finds "the most
ancient and accurate standard of measure in existence."

I am shocked at being obliged to place a thoughtful and learned
writer, and an old friend, before such a successor as he here meets

with. But chronological arrangement defies all other arrange-
ment.

I had hoped that the preceding account would have met Mr.
Taylor's eye in print: but he died during the last summer. For
a man of a very thoughtful and quiet temperament, he had a
curious turn for vexed questions. But he reflected very long and
very patiently before he published: and all his works are valuable
for their accurate learning, whichever side the reader may take.

HOME AND FOREIGN INTELLIGENCE.

THE SCOTTISH WIDOWS' FUND LIFE ASSURANCE SOCIETY.
Founded A.D. 1815.

SEVENTH DIVISION OF PROFITS.

REPORT BY THE MANAGER ON THE INVESTIGATION OF THE SOCIETY'S
AFFAIRS, MADE AS AT 31ST DECEMBER 1866.

THE operations of the seven years ending 31st December last have been
marked by several important features which it seems desirable to bring to
the recollection of the Court of Directors, at the outset of the present
Report.

Change of Laws.

The Court is aware that the Society was originally constituted on the
basis of the Northampton Table of Mortality and on the assumption of an
improvement of money at the rate of 4 per cent. At each periodical
ascertainment of Surplus it was required that there should be reserved
from division at least one-third of the Surplus, and also that, from the
remaining two-thirds, there should be set aside a sum equal to the value of
the Intermediate Bonus, payable on such Policies as should become Claims
before the next period of Division. The six Investigations, prior to the
present, were made according to these Rules. To persons not intimately
acquainted with the subject, the reserve of the large sums referred to, out
of what the system represented to be actual Surplus, naturally suggested
the belief that there was a tendency in the original constitution to the
accumulation of undivided profit, in which the Members whose payments
had created it might never participate. On the other hand, it was shown,
by *approximate* Valuations made in 1852 and 1859 according to the
Carlisle Table of Mortality, and 3 per cent interest, that the tendency
really was in the opposite direction. The probabilities deduced from the
Assumed Mortality of the Northampton Table were evidently so wide of
the truth, and the whole results brought out by the use of them (even with
the compensatory reserves referred to) were seen to be so doubtful and
misleading, that it had become absolutely necessary to abandon the original
basis of Valuation, and to adopt another and more reliable one in its stead.
The new basis of the Carlisle 3 per cent Table was, in the end of 1864,
finally adopted.